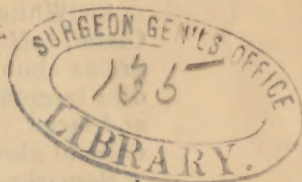


Butter (Eph.)

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NEW YORK.

List of Food Stuff's Examined.

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Prepared for the MEDICAL NEWS.

NOTE.—Quantity taken of each specimen was enough to make a thin circular film,  $\frac{3}{4}$  inch in diameter, thoroughly moistened with water. Power, 200 diam. For a *standard*, the lost nation wheat meal was taken. This wheat has a very large and well-developed grain of great beauty.

Prof. Butterfield attested the genuineness of the preparation, being simply the wheat ground up without bolting. There were found starch-~~atensome~~<sup>some</sup>, starch bundles, some of them perfectly preserved, having the beard and about 300 gluten cells. Specimen somewhat heated in milling, as shown by imperfect polarization. Abundant connective tissue. It follows, then, that a flour to be perfect should present 300 gluten cells in the above amount.

Examination, 1.—“Fine granulated wheat flour.” Claim, “free from outer tegument.” Report, 1. Polarizes light well. 2. Hairs from beard. 3. Several cotton fibers. 4. Starch bundles all sizes and shapes. 5. Starch free. 6. Organic substance looking as if cooked by boiling and then dried. 7. More of same, yellowish, starch grains altered in contour and surface. 8. Three masses of tegument containing in all 30 gluten cells.

2. “Cold blast whole wheat flour, dark,” New York Health Food Co. Claim, “only tegument removed.” Report, 1. Starch and starch bundles large and some nicely dissected. 2. Connective fibrous tissue plentiful. 3. Silk. 4. Polarized light well. 5. Two perfect hairs with tegument attached. 6. Tegument with no gluten cells. 7. Two masses of tegument with 30 *gluten cells*. 8. Minute granular masses of tegument that appear as if belonging to some other grain.

3. “Cold blast flour, *extra*,” New York Health Food Co. Claim, “tegument and part of gluten removed.” Report, 1. Starch bundles broken off with shapeless masses. 2. Polarization beautiful. 3. *Masses of tegument*. 4. Connective tissue. 5. *No gluten cells*.

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Remark.—The extra consists in the entire absence of gluten cells.

4. "White gluten flour," New York Health Food Co. Claim, "*all gluten* and almost no starch. Report, 1. Starch grains abundant and polarize light well. 2. Starch bundles large and coarse. 3. Masses of tegument abundant and large. 4. In several specimens carefully examined only 70 gluten cells found.

Remarks.—On examining some crackers made by the same company, and claimed to be *entirely made of gluten cells*, I found mostly starch, with but a few gluten cells. Certainly the claim in this No. 4 was fraudulent.

5. "Whole wheat," New York Food Co. Claim, "tegument removed." Report, sustained.

6. "Pearl corn meal," New York Food Co. Claim, "tegument removed." Report sustained.

7. "Lost nation white flour." Claim to be a pure flour. Report, no gluten cells found.

Remarks.—This shows the effect of bolting. Compare with the standard meal as above.

8. "Rye flour coarsely bolted." Report, 1. Cellular straw tissue. 2. Starch bundles coarse and massed. 3. Gluten cells abundant.

9. "Barley flour," New York Health Food Co. Claim, "tegument removed, nearly all the remainder saved." Report, two large portions of tegument. No gluten cells.

10. "India wheat flour," Wilmington, Vt. No gluten cells. Polarizes well. Mostly large lozenge bundles of very minute starch grain.

11. "Buckwheat flour," New York Health Food Co. No gluten cells.

12. "Corinna (Minn.) flour, patent." Polarization beautiful. Starch bundles quite uniform in size. *No gluten cells.*

13. "St. Paul (Minn.) flour." *Straight* giant starch. Two large masses of cooked organic substance. Tegument. Hairs of beard. Connective tissue. *No gluten cells.*

14. "Hazelon flour," St. Louis. Giant starch grains abundant. Starch bundles well preserved. Tegument. Hairs. Connective tissue. *No gluten cells.*

15. "Puritan flour," Michigan. Polarizes well. Starch granular and giant. Tegument. Hairs. Connective tissue inclosing starch grains. *No gluten cells.*

16. "Patapsco flour," Baltimore. Many masses of gran-



ular starch. Connective tissue. Hairs. Tegument. Some large bundles of starch. *No gluten cells.*

17. "Underwood flour," Illinois. Starch, giant, medium, granular. Bundles well formed. Tegument scant. Polarization fair. Considerable collections of mobile spores of a fungus, as if the flour had soured. *Three gluten cells.*

18. "Harrison wheat-meal." Starch bundles normal. All sizes starch grains. Tegument in large masses. Coarse and fine connective fibrous tissue. A beautiful collection of same, the bundles being emptied of their starch, yet retaining their shape as when filled—an exquisite skeleton of the bundles. Gluten cells abundant. Some were surrounded with gleaming spores of a fermentative vegetation. (The preparation had soured.)

19. "Sylvester Graham meal, 'bogus.'" This proved to be a dirty, ill-prepared specimen.

20. "Arlington wheat-meal," S. A. Fowle, Arlington, Mass. Many examinations conducted during a long interval of time show this to be rich in gluten and in the coats of tegument. It is what it claims to be—a meal made from the best winter white wheat the market affords. It comes next to the standard meal alluded to above.

21. "Entire wheat flour," Franklin Mills, Lockport, N. Y. *Claim*, a part of the tegument removed, but leaving the gluten cells. It is ground fine as a flour—attrition process.

Specimen (A) made from whiter wheat. Polarizes light well. Large piece of tegument involving all the coats. Starch bundles oval and ovoid. Three portions cigar coat. Four hairs of beard. Empty bundles of areolar tissue. Forty gluten cells in all.

Specimen (B) same flour, darker variety, contains large masses of tegument. Six hairs. Areolar tissue. Many well-formed starch bundles. Two ~~thousand one~~ hundred and three gluten cells.

*Remarks.*—Comparing 21 with the standard, it approaches the standard nearer than any of the FLOURS, but not so near as the Arlington wheat-meal. It makes an excellent bread. It is the nearest approach we have seen to a perfect flour. If this standard of manufacture is maintained, it should receive the patronage of all who are interested in the well-being of our race. No doubt the time approaches when milling will remove the outer

four coats and leave the gluten comb coat entire; but till then, these morphological examinations show 21 to be the best manufactured flour.

*lini* 22. "Mellin's food." Claim to be a perfect infant food. Evidently a cooked preparation, as the wheat-starch was broken up and indifferent to polarized light. Four gluten cells, two without coat. Some emptied gluten cells. Hairs of beard of wheat. Granular masses of cooked substance. Preparation very sweet with sugar.

23. "Horlick's food." Claim, perfect infant's food. Tegument. Hairs. Starch and starch bundles of wheat evidently. No polarization. Hence, cooked. Considerable number of gluten cells.

24. "Imperial granum." Specimen obtained from consumer in New York City. Claim, "very rich in phosphates and gluten cells." A very careful morphological examination disclosed only *starch* that resembled, if not wheat, not a *gluten cell found*.

Remarks.—This specimen was really inferior to some common flours.

Instances have been brought to my attention where cholera infantum cases had failed to derive any benefit from the use of 22, 23 and 24, and yet when put on 20 or 21, preparations containing gluten cells, rallied and entirely recovered. It is a question whether 20 and 21 might not well supersede the preparations of infants' food in which starch and sugar are in excess. Twenty-two, 23 and 24 are given in milk, which is the saving element. It should never be forgotten that infants need in food all the chemical elements found in these tissues, and in physiological proportions. Starch and sugar being made up of C, H, O. (three elements), can not supply the sixteen elements found and needed in the human body, but 20 and 21, and like preparations, contain nearly all the body elements, as shown by chemistry and histological botany. Few, even among physicians, realize the tremendous importance of our subject in a pathological point of view.

It is fervently hoped it may attract the attention of microscopical observers. Thus the microscope may become an engine of beneficence to mankind by showing that slavery to the æsthetics of sight in the matter of food ignores the common-sense claims of chemistry, botany, and physiology.

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